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NEW ELECTRICITY MARKET DESIGN IN THE CLEAN ENERGY PACKAGE

Online capacity-building material



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TOPICS OF THIS PRESENTATION



From liberalisation to clean energy package; objectives of TEP v CEP

What is new in the Electricity Market Design?

Part I: Ensuring IEM Level Playing Field

Wholesale (balancing, short-term and forward markets, Stricter rules for CRM, RCC, Coal phase out) & Retail markets (price deregulation rules)



Part II: Adapting to Decentralized Electricity System

Flexibility; strengthening old and introducing new DSO roles, EU DSO



Part III: Empowering Consumers and Citizens

New rights of consumers, smart metering, dynamic pricing, new market entrants: Aggregators and Citizen Energy Communities



Part IV: Risk –preparedness in electricity sector



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PART 1 GENERAL



From Liberalisation to Clean Energy Market

Three Liberalisation Energy Packages

Electricity Directive 96/92/EC

- Partial market opening
- No NRA
- Unbundling rules introduced
- Choice of TPA models

Electricity Directive 2003/54/EC

- Full market opening
- Regulated TPA
- Stricter Unbundling Rules
- NRA

Third Energy Package – still in force in EnC

Clean Energy Package

Electricity Directive 2009/72/EC

- All customers eligible
- TSO ownership unbundling + ITO & ISO with demanding conditions
- Regulated TPA
- Strong Independent NRA; ACER, ENTSO-E

Regulation (EC) 714/2009 on cross-border exchanges in electricity

Cross-border regulation and cooperation

Modern framework for transition towards cleaner & more sustainable energy;

Stable environment stimulating investment & providing energy industry with new business opportunities, new business models.

Puts consumer at the centre of the energy transition & empowers active participation in the market.

Presupposes TEP is implemented => addresses remaining obstacles from TEP and new challenges ahead...

Directive on common rules for the internal market for electricity (EU) 2019/944

Regulation on the internal market for electricity (EU) 2019/943

Regulation on risk-preparedness in the electricity sector (EU) 2019/941



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New Challenges Addressed with CEP New Electricity Market rules



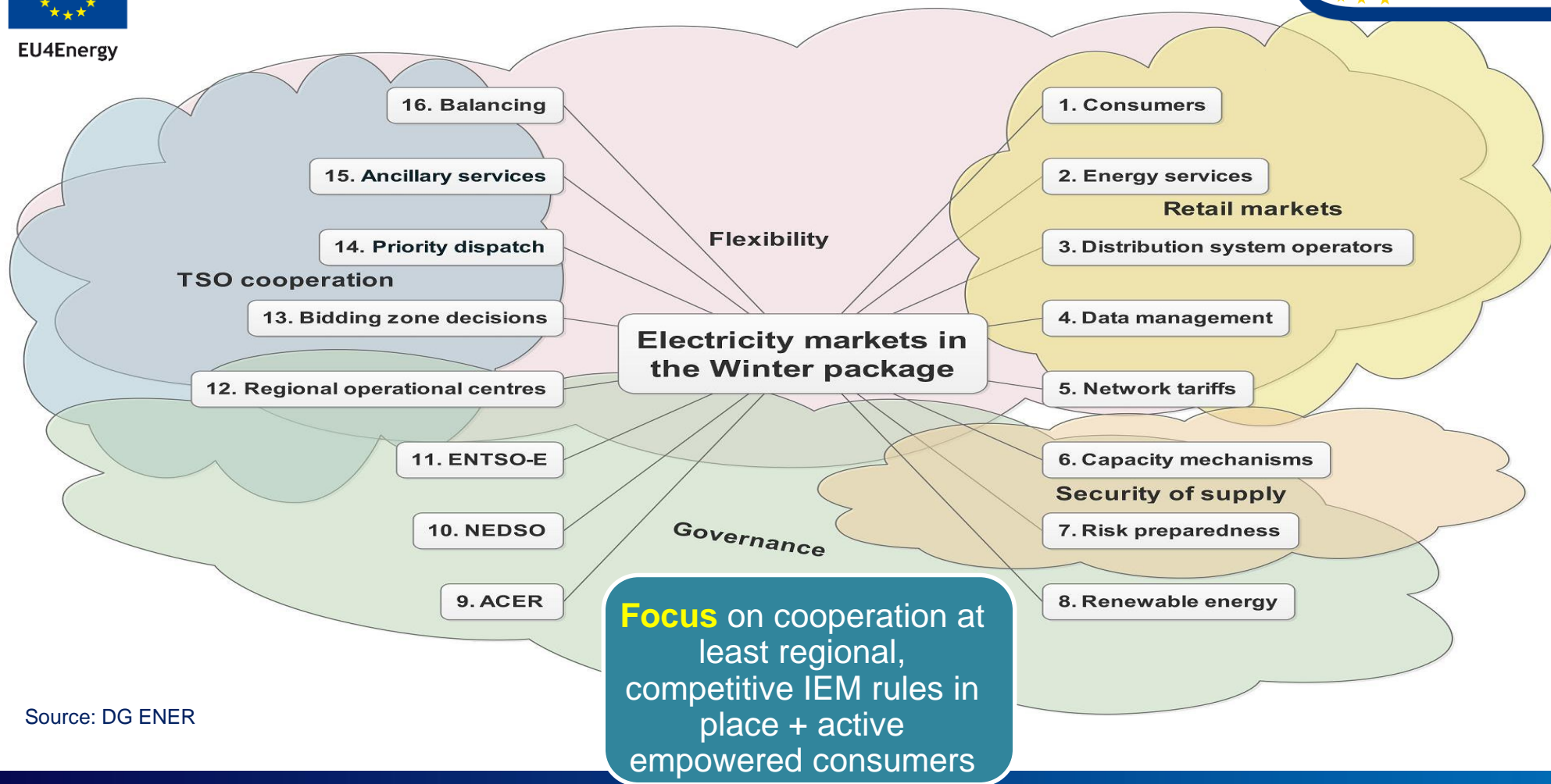
- **Production**
 - *increased share of electricity from RES*
 - *phasing out thermal sources*
 - *variable and decentralized generation*
- **Consumption**
 - *Demand Side Response, digitalisation*
 - *increased use of new appliances, electrification*
 - *customers => prosumers*
 - *price deregulation => incentive to change consumption*
- **Technology**
 - *Smart solutions*
 - *Energy storages*
- **Climate change / Paris agreement**
 - *temperature increase to well below 2°C, and pursue efforts to limit to 1.5°C*
 - *global emissions to peak asap*
 - *net zero emissions in the second half of the century*
- **Market integration**
 - *integration of short-term market & cross-border trade of aggregated variable production*
 - *PXs and market coupling*





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ELECTRICITY MARKETS IN CEP

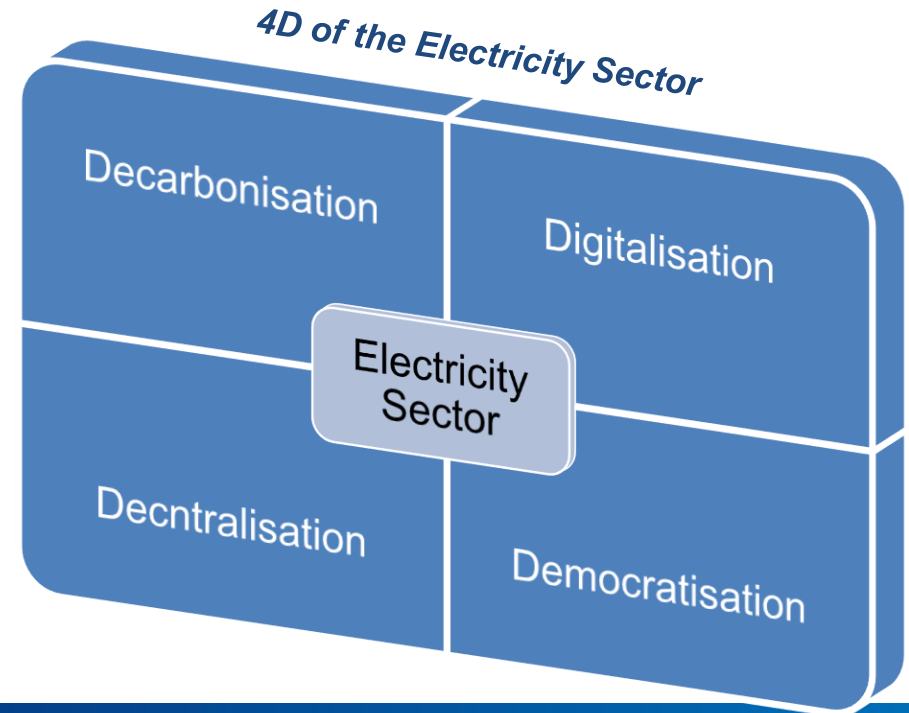
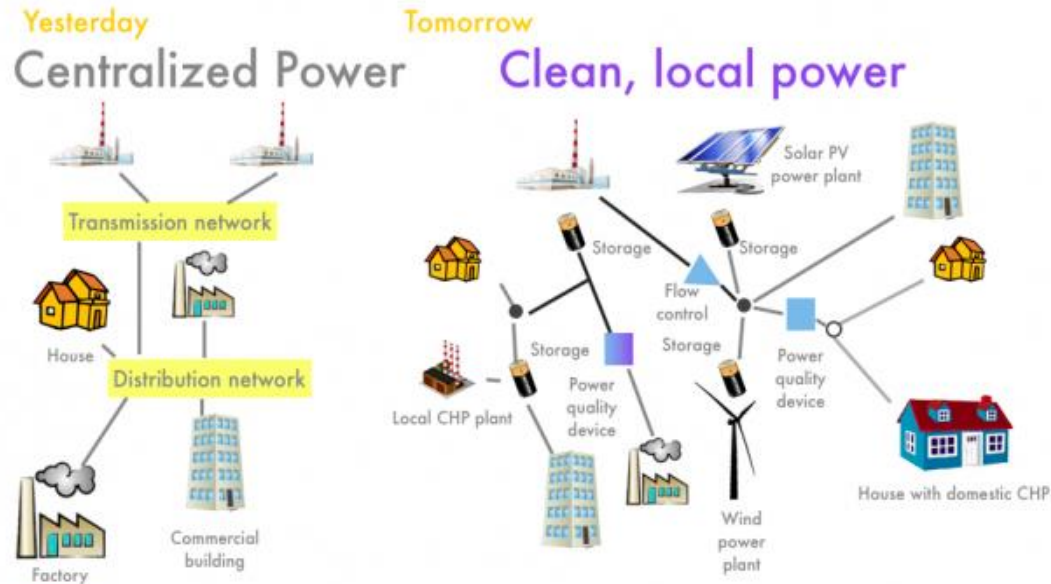


Source: DG ENER

From centralised, thermal based to clean, local, consumer-centred electricity market

Electricity Regulation - sets out general principles for the operation of the electricity market, including market based prices, more flexibility, customer participation and cross-border electricity flows.

Electricity Directive - aims at completing the IEM by removing barriers and increase consumer protection & at addressing new market challenges. Includes changes concerning price regulation & ensuring flexibility.





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PART 2

ENSURING LEVEL PLAYING FIELD ON THE INTERNAL ELECTRICITY MARKET



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WHOLESALE MARKET TOPICS COVERED



✓ Balancing & balancing markets

✓ Short-term and forward markets

✓ Dispatch and redispatch of all generation, storage & DR

✓ Bidding zones, capacity calculation and capacity allocation

✓ Capacity mechanisms

✓ System operation regional governance: Regional Cooperation Centers

✓ Coal support phase out
Just transition



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ENERGY REGULATION

Links with Network Codes



First generation Network Codes from TEP

- Market Network Codes
- Connection Network Codes
- Operation Network Codes

Areas from TEP – Network Codes not yet developed

- TPA
- Data exchange and settlement rule
- Harmonised transmission tariff
- EE regarding transmission networks

New areas for Network Codes from CEP

- Non-discriminatory, transparent provision of ancillary services
- Demand Response including aggregation. Storage and curtailment rules
- Cyber Security rules
- Rules concerning RCC





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ENERGY REGULATION

General rules for electricity market



Art. 3 Principles of market operation

Art. 5-6 Balance responsibility & market

New definitions

All market participants = **BRPs**

Derogations: demonstration projects;

RES , 400kW (after 2026 ,200kW)

Balancing **energy** = marginal price & procured separately

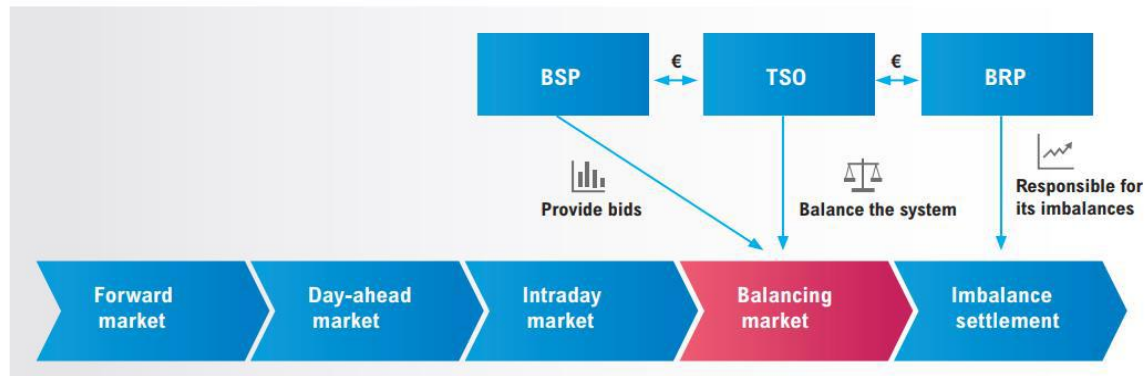
from balancing capacity = market-based; regional; short contracts

Art. 12 Dispatching

Priority **only** for demonstration projects & RES <400kW (after 2026 <200kW); avoid retroactive changes but stimulate voluntary give up priority dispatch

Art.13 Redispatching

Objective, transparent, non-discriminatory; **open for all** generation, storage, DR; also from other MS and **financially compensated**



Art. 7-8 DAM & IDM trade:

MO and NEMO def; harmonize gate closure time; imbalance

settlement period = **15'**

(in case of derogation after 2025 = 30' max)

Art. 9 Forward markets & Art. 10 Bidding limits:

free wholesale electricity prices; no price floors / caps



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ENERGY REGULATION



Network Access & Congestion Management Art.14-17

Improving zonal congestion management model: bidding zones and capacity calculation between zones

- **Congestion management and capacity allocation:** main principles remain, reinforced rules on capacity allocation and congestion, including through a **review of bidding zones**
- Action Plans to remedy congestions based-on non-discriminatory and market-based solutions
- Rules for revenues from congestion management
- TSOs have to make **min 70% capacity available**
- Financial responsibility for a failure to comply with the obligation to allocate capacity to be borne by TSOs or NEMOs
- Rules on **network charges** = reinforced and updated: transparent and non-discriminatory
- Network charges will **NOT apply to cross-zonal trading**
- **NEW rules on distribution tariffs** and on their calculation methodology



System operation regional governance: Regional Coordination Centres Art.35-47

Establishment and mission of RCC

- into operation by 01.07.2022
- act independently of national interests and individually independently of TSO interests

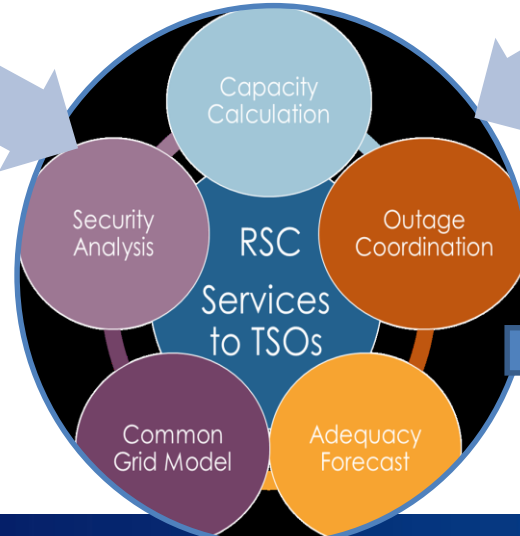
From voluntary to mandatory coordination

RSC were set for regionalisation tasks when benefiting the system and market operation

Replace RSC from SO GL

Rules on:

- ✓ working arrangements
- ✓ Management Board
- ✓ organisational structure
- ✓ equipment and staff
- ✓ costs not to go beyond necessity



NEW services for RCC by CEP in Art. 37 & Annex I of ER;
Cooperation **within and across** regions' borders
No binding decisions but
“**coordinated actions**” to TSOs
Risk-preparedness tasks

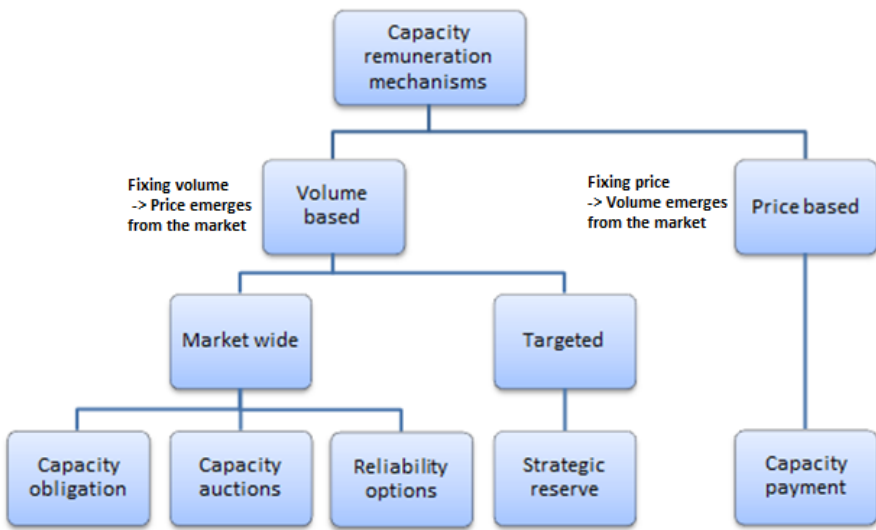


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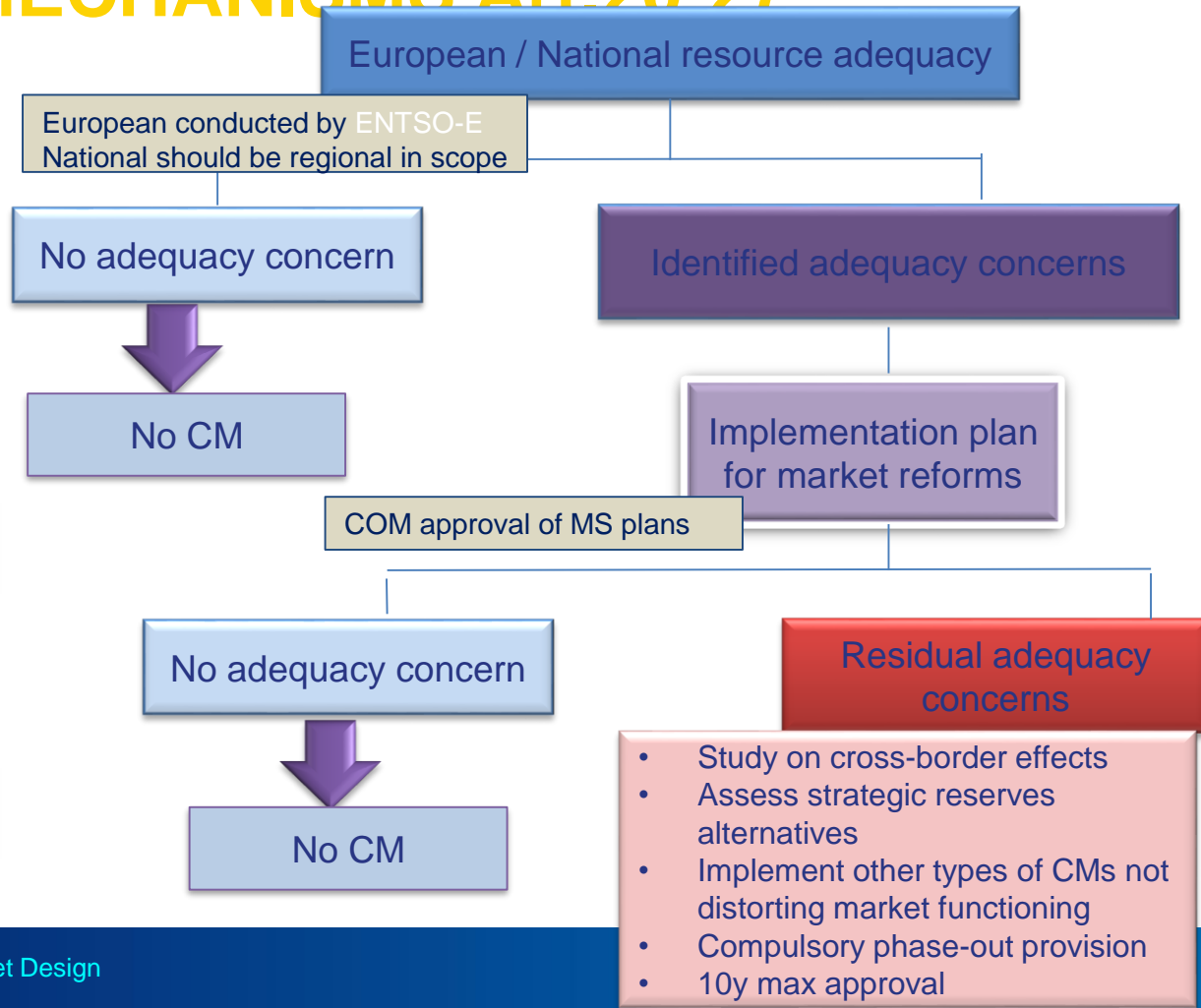
NEW RULES ON RESOURCE ADEQUACY AND CAPACITY MECHANISMS Art 20-27



- Different CM in place in Europe
- Approval under State aid rules required !
- **New stricter rules** established in the Electricity Regulation with compulsory **adequacy assessment**



Taxonomy of capacity mechanisms, Source: EP (2017)





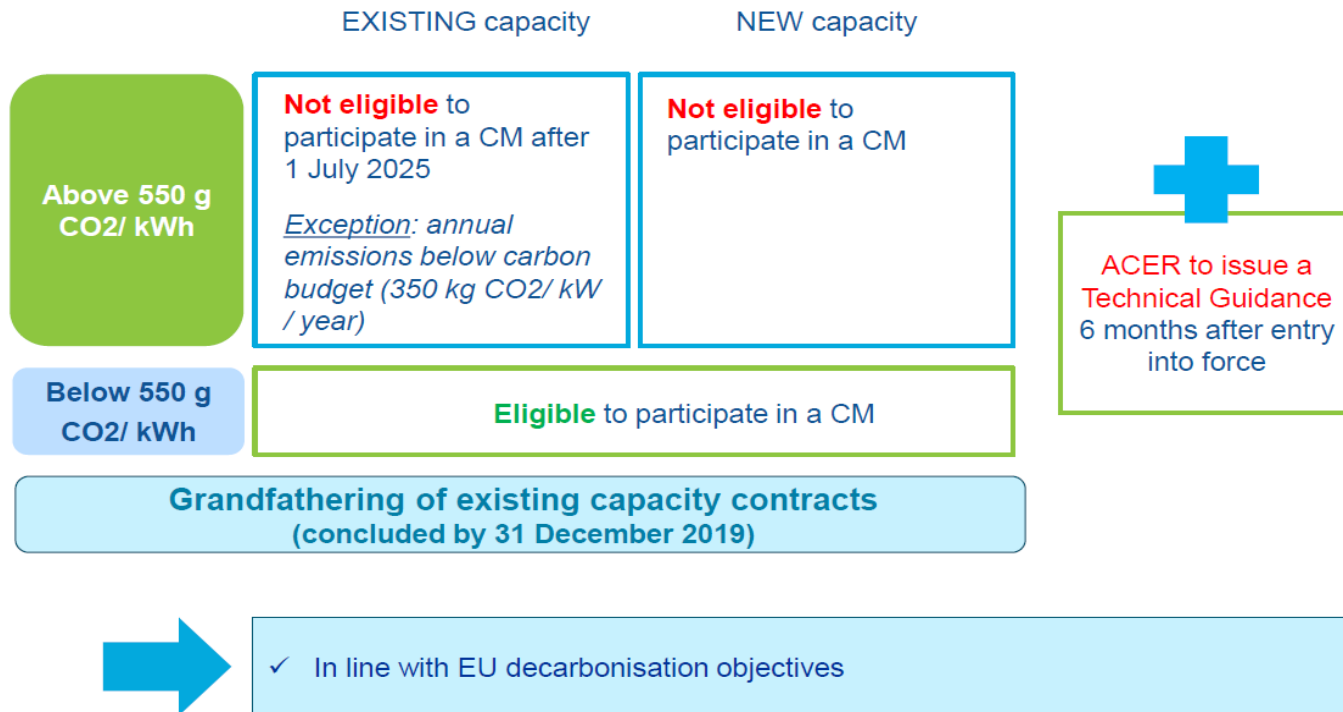
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CAPACITY MECHANISMS

Limiting cross-border concerns & impact on climate goals



- Adequacy concerns need to be identified against reliability standards, by binding resource adequacy assessment
- CM as last resort only!
- CM = temporary, non-distortive, non-discriminatory and open to all types of resources, including storage & demand side management
- Open to foreign capacity – TSO set the max. capacity based on RCC recommendation
- No remuneration from electricity market



Source: FSR, Oct 2019 based on Art.22 ER



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PHASING OUT COAL JUST TRANSITION



2050

- > 60% of all energy produced from RES
- > 80% of electricity produced by RES
- EUR 2-3 trillion of energy import savings (2030-2050)

Risk of carbon leakage from third countries
No carbon price & weak state aid enforcement
2.4 bil.EUR direct and indirect subsidies to coal in EnC

See: *ECS Study on Direct and Hidden Subsidies to Coal Electricity Production in the EnC, 2019*

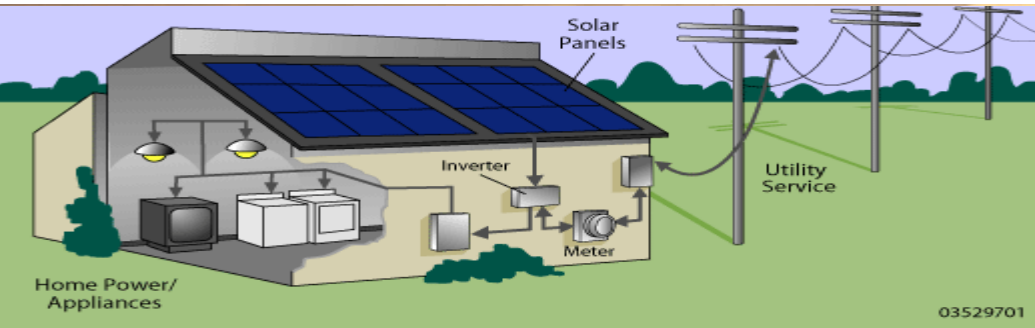


Article 4 Electricity Regulation

- COM shall **support** MS that put in place a national strategy for **progressive reduction** of existing coal and other solid fossil fuel generation and mining capacity to enable just transition;
- COM shall **assist** MS in addressing social & economic impacts of the clean energy transition;
- COM shall **work** in close partnership with the stakeholders in coal and carbon- intensive regions...



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PART 3

ADAPTING TO DECENTRALISED ELECTRICITY SYSTEM

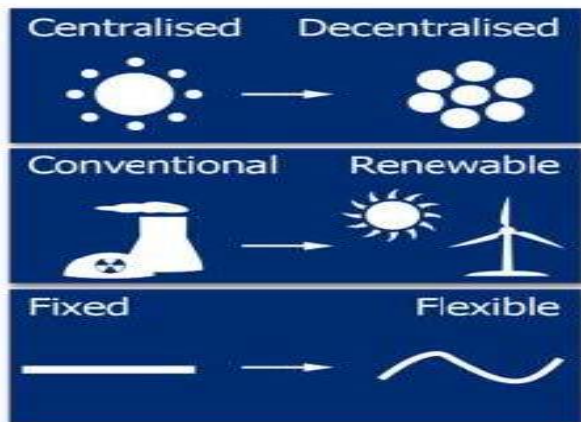


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ELECTRICITY DIRECTIVE: ADDRESSING NEED FOR FLEXIBILITY IN THE SYSTEM



TRENDS



OBSTACLES



SOLUTIONS



KEY



Source: DG ENER, 2019

New market design – unlocking & rewarding flexibility

Increased RES => need for flexibility in distribution network

- DSOs to **procure flexibility services** from distributed energy resources (*demand response, local generation, storage and EVs*) in order to manage local congestions and solve technical problems;
- MS or/and NRAs to define regulatory framework, including **incentives for DSOs and appropriate remuneration**;
- Procurement through **market based procedures**, with definition of required products and technical modalities = level playing field for flexibility providers;
- Network development with emphasis on RES integration and innovative network solutions.



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ELECTRICITY DIRECTIVE

DSOs TRADITIONAL AND EMERGING ROLES



Strengthening core DSO activities

- Network planning
- Network management
- TSO-DSO cooperation



Emerging role re Storage Facilities Art.36 & 54 ED

- DSOs & TSOs should not own or operate storage facilities
- MS may allow SO to get involved in case of market failures



Emerging role re EV charging infrastructure

- DSOs shall not own or operate recharging EV facilities
- MS may allow as derogation
- Phase out derogation rule



DSO involvement in:

Data management
NC development





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CONSUMER



The Customer is King

PROSUMER

PART 4

EMPOWERING CONSUMERS AND CITIZENS





PRICE (DE)-REGULATION

Principles

- Free supply prices
- Effective competition between suppliers
- Protection of energy poor and VC through social policy

Art.3 Electricity prices shall reflect actual demand and supply

Art.5 Suppliers shall be free to determine prices of supply

Discrimination

Derogations

Art. 5(3) Regulated prices for **vulnerable customers and households in energy poverty** (social tariffs)

Art. 5(6) Regulated prices for other **household customers and microenterprises** during **transition** to a competitive market

Review & proposal for **end-date** of price regulation **2025**

Criteria for price regulation as exceptions

Art.5(4):

- Pursue general economic interest and not go beyond necessity
- Clearly defined, transparent, non-discriminatory and verifiable
- Limited in time & scope
- No additional cost

Art.5(4) + Art.5(7):

Additional requirements to mitigate negative market impacts, including setting prices at a level where effective price competition can occur, ensuring the non-discriminatory treatment of suppliers, accompanied by measures to achieve effective competition



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PSO, USS, VC & ENERGY POVERTY



UNIVERSAL SERVICE: *not at reasonable but at **COMPETITIVE** prices (Art.27)*

VULNERABLE CUSTOMERS: *elements for the **concept**; through social system or EE Art.28*

ENERGY POVERTY

**Article 9
PSO**

MS to notify COM / CP to notify ECS of all PSOs and measures



In 4 pieces of energy legislation: ED; EPBD; EED & Governance Regulation

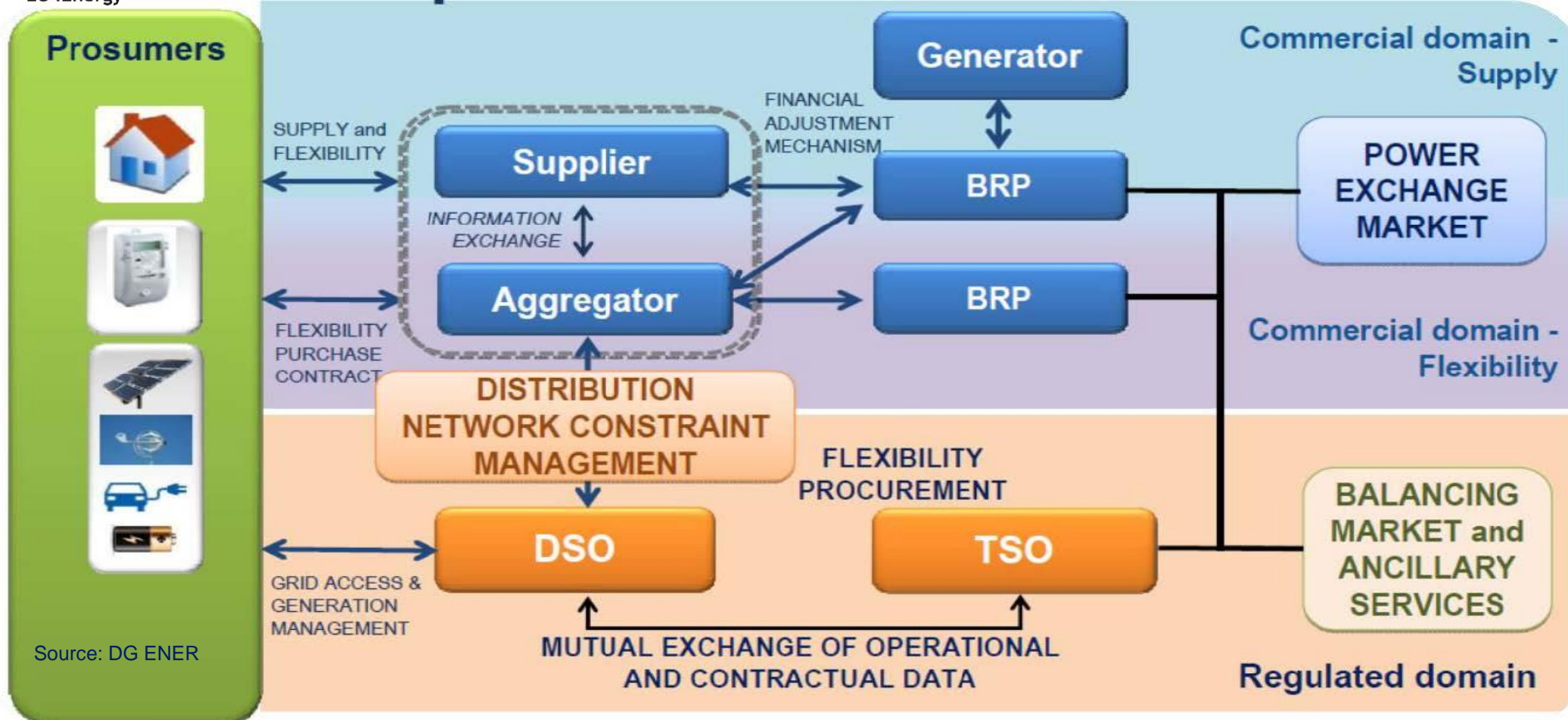
MS to **establish criteria** for measurement, **monitor number** of & **take measures** to fight energy poverty through EE measures (*renovation strategies, EE obligation schemes*) & social tariffs.
MS to **report in NECP** (*assess number of HH, policy, measures, timeframe*)

- ❖ Energy Poverty Observatory
- ❖ MS report ...
- ❖ COM provides guidance...



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ACTIVE CONSUMERS IN THE CENTRE



Source: DG ENER



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INFORMED, PROTECTED, EMPOWERED CONSUMERS Chapter III Electricity Directive



INFORMED

- Right to:
 - > **smart** meters
 - > certified **comparison** tools
 - > clear energy **bills**
 - > access to **data** - interoperability

EMPOWERED

- Right to:
 - > generate, consume, store or sell electricity at all markets - **active**
 - > **dynamic** price electricity contract
 - > independent **aggregator** service
 - Easier to **switch**
 - Reward **demand response**

PROTECTED

- Rules on energy Poverty, VC, USS ...
- Alternatives to disconnection
- SoS
- Data management
- Out-of-court dispute settlement

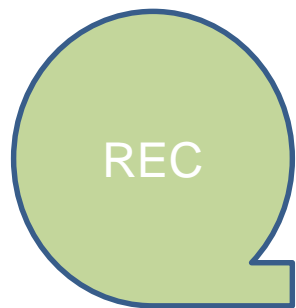
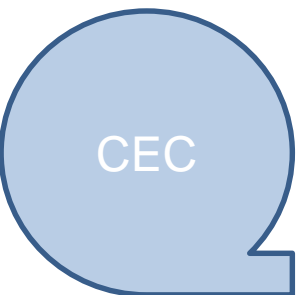




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CITIZEN ENERGY COMMUNITY Electricity Directive

RENEWABLE ENERGY COMMUNITY Renewables Directive



Activities	Geographic scope	Governance	Regulation	Network
Supply, consumption, storage, aggregation & distribution, other energy services	No explicit geographical limitation	Citizens, SME, public authorities Effectively controlled by members or shareholders	Aim to create level playing field for communities	MS may allow CEC to have DSO status Possibility to give them the advantages of “closed networks”
Production, consumption, storage and selling of RES	Members located in community RE projects	Exclusively citizens, SMEs or local authorities. Effectively controlled by local members or shareholders	Instrument to promote and facilitate the development of RE Elimination of barriers	No ownership or management of distribution networks by REC

An abstract background featuring a complex network of glowing blue nodes connected by thin lines, resembling a digital or neural network.

PART 4



SECURITY OF ELECTRICITY SUPPLY

Risk-preparedness





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Risk-preparedness Regulation

Security of supply rules



Energy Community

Risk assessment

- **ENTSO-E to submit to ACER:**
 - Methodology for **identifying crisis scenario** in regional context
 - Methodology for short-term and seasonal **adequacy assessment**
- **ENTSO-E to:**
 - identify regional electricity **crisis scenario** or to delegate to RCC
 - carry **seasonal** adequacy assessment or to delegate to RCC
- **MS to identify** most relevant scenarios for national situation

Risk-preparedness plans

- MS to establish plans on the basis of electricity crisis scenarios
- Plans to take **account of regional context** - template in Annex I
- **Measures** – national, regional, bilateral: clearly defined, transparent, proportionate, non-discriminatory & fully compliant with rules on IEM

Managing crisis

- MS to give **early warning** to COM and ECG of significant deterioration of electricity supply
- Cooperation in spirit of **solidarity**
- Non-market measures as last resort only and fully compliant with IEM rules & system operation rules

Monitoring and evaluation

- ASAP and no later than 3m CA to submit evaluation report to COM and
- By 1 Sep 2025 – COM to evaluate means for enhancing SoS

Art.20 Cooperation with EnC Contracting Parties
+ Methodology for adequacy assessment to take account of national, regional, Union context and third countries synchronous with the Union



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